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THIS DOCUMENT CONSISTS OF 2 PAGES 0 FIGURES.
THIS IS COPY 1 OF 5 COPIES A SERIES.

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FINANCIAL AND STATUS REPORTS

DECEMBER, 1957

U.S. 132

TASK 5

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92-44-6

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I. FINANCIAL

Funds Authorized	$ 60,000
Funds Expended (As of Dec. 29, 1957)	23,679
Funds Committed	18
Funds Remaining	36,303

II. STATUS

Image Recognition

Circuits have been set up to evaluate the magnetic core type discriminator previously mentioned. This circuit uses three transistors and three magnetic cores so arranged that the effect of variations in three separate elements of a picture can be simulated. Ultimately some twenty or thirty of these discriminator elements may be required for a complete image dissection unit. Data is being obtained concerning the design of the discriminator elements as well as on methods of combining the outputs of a number of discriminator elements.

A cylindrical lucite lens system for determining horizontal position of the object has been tested. One of these lens systems would be used in place of each H group of photo cells shown on the sketch attached to the October report. A manufacturer of photo cells who will undertake to supply a suitable multiple unit photo cell array has not yet been found.

The aperture size study being made on the test scanner is not yet completed. The appearance of the numerical patterns for various objects was found to undergo important changes when the numerical information was quantized on a basis dimensionally commensurate with aperture size. Hence all of the tests are being re-evaluated on this basis, and additional measurements are necessary.

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FINANCIAL AND STATUS REPORT

NOVEMBER 1957

U.S. 132

TASK V

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I. FINANCIAL

Funds authorized	$60,000
Funds Expended (As of Dec. 1, 1957)	21,097
Funds Committed	0
Funds Remaining	38,903

II. STATUS

Image Recognition

A voltage discriminator is required to convert the continuously varying photocell outputs to signals which make an abrupt change of fixed magnitude for a predetermined change in light level. Since one of these is required for eachphoto pickup, there is an important advantage in developing a compact, simple device for the purpose, which in addition should respond equally well to either polarity of photocell signal change. Some success has been obtained using a tape wound magnetic core as a basis for a new type of voltage discriminator for this purpose. The signal winding on the magnetic core is energized by a change in current in the photocell. The circuit is so arranged that it produces an output which is independent of the direction of the change. Diodes are provided for clipping the outputs from the magnetic core. The simplicity of this system compared to others which have been considered, justifies pursuing it further.

Work has proceeded with the test scanner, using a Berkeley Digital Timer and Recorder to quantize the output obtained with white silhouettes on a black background. Tests are being made with various aperture sizes, and a lower size limit has been established beyond which the additional detail obtained does not appear useful. The upper limit with large apertures is now under investigation. The objective is to use the largest acceptable aperture in order to reduce the total number of receptors necessary and thus make the required size of the memory a minimum.

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